AMERICAN SOCIETY FOR TESTING MATERIALS

BULLETIN

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Plans Under Way for Thirty-seventh Annual Meeting

Interesting Technical Program Being Arranged

MANY more than the average number of offers of technical papers for presentation at the annual meeting have been received by the Committee on Papers and Publications, which is now at work on the technical program for the 1934 annual meeting, the thirty-seventh in the Society's history. It is to be held at Chalfonte-Haddon Hall, Atlantic City, June 25–29. The Papers Committee has not been able to accept as many of this exceedingly large number of papers as it would wish, but by definitely limiting the size of a paper, with consequent concise presentation, it has been found possible to include more papers on the program than would otherwise be the case. This method makes it possible to cover more topics and provide a greater diversity of material for inclusion in the *Proceedings*.

Advance Technical Program

It is possible at this time only to give a very general picture of the program. Several symposiums or topical discussions are in prospect, such as on magnetic analysis, light alloys, subgrade soils, and on tinting strength of pigments.

It is probable that one session of the meeting may be devoted to a discussion on "Presentation of Data." Some very worthwhile papers on this subject have been offered and because of the increasing appreciation of the importance of this whole question of interpretation and presentation of data, a complete session would appear to be justified.

Many excellent papers will be included in the program—to be announced provisionally in the April issue of the BULLETIN—in the fields of metals; cement and concrete, brick, masonry materials; testing and testing apparatus and in miscellaneous categories.

A number of the reports of committees will bring to a culmination work which has been in progress for some time. Many of the committees each year are presenting increasingly valuable information and data accumulated through definite research programs.

It seems consistent to conclude from a preview of the technical program that it will be a highly interesting one. In so far as possible synopses of the papers and reports will be given in the Provisional Program.

Preprints of the papers and reports will be available to the members in advance of the meeting and will be distributed in the customary way. Each member will receive a preprint request blank with the April BULLETIN on which he may indicate the items he wishes to receive. Preprints will be sent only to those members who request them.

Edgar Marburg Lecture

The 1934 Edgar Marburg Lecture, the ninth in the series, will, of course, be a feature of the meeting. Doctor Sheppard T. Powell, Consulting Chemical Engineer, associated with Johns Hopkins University, Baltimore, has accepted the invitation to deliver this lecture. His subject will be in the general field of water—considered as an engineering and industrial material.

Reduced Railroad Rates

Application is being made to the railroad passenger associations for reduced round-trip rates for the annual meeting. It is probable the identification certificate plan will be used—the certificate being mailed from the Headquarters office to each member—with additional ones on request for use of members' families and associates. Full details will be announced later.

Hotel Rates and Reservations

Chalfonte-Haddon Hall has ample facilities for meeting requirements demanded by an A.S.T.M. annual meeting. The 13th floor, called the "meeting room floor," is excellently designed for registration, session rooms, committee rooms, and it is very comfortable—even on the hottest days.

There always have been ample room accommodations—rooms being available either on the American or European plan. Special rates have been granted A.S.T.M. members and their guests. These rates, given on page 2, will prevail a few days before and after the meeting.

Members who wish to make reservations immediately can do so by addressing the hotel management. Reservation folders with typical floor plans will be distributed to each member with the April BULLETIN. The Chalfonte and Haddon Hall each has its own dining room service, so that members who wish to take their meals together should secure accommodations in the same division of the hotel, particularly if they register on the American plan.

Washington Regional Meeting Focuses Attention on Corrosion Data

Interesting and Successful Meeting Held

A SERIES of very interesting papers comprising the Symposium on Outdoor Weathering of Metals and Metallic Coatings, pertinent and constructive discussion, and some thought-provoking addresses at the dinner, rewarded those who attended the 1934 Regional Meeting of the Society at the Wardman Park Hotel on March 7. Together with the 1934 Spring Group Meetings of Committees (see next page), this A.S.T.M. meeting stands out as a highly successful one. About 250 were present at the afternoon session.

Technical Program

The authors of the five papers comprising the technical program were commended for their painstaking studies of the various problems investigated. As a whole they focused attention on the great importance and value of the widespread test programs of Committees A-5 on Corrosion of Iron and Steel and B-3 on Corrosion of Non-Ferrous Metals and Alloys. The papers presented, each of which was preprinted, were as follows:

OUTDOOR TEST RESULTS ON BARE AND METAL-COATED FERROUS SPECIMENS—C. D. Hocker, Chemical Engineer, Bell Telephone Laboratories, Inc.

THE EARLY INTERPRETATION OF TEST RESULTS IN THE ATMOSPHERIC CORROSION OF NON-FERROUS METALS AND ALLOYS—W. H. Finkeldey, Metallurgist, Singmaster & Breyer.

GALVANIC CORROSION BY CONTACT OF DISSIMILAR METALS—C. L. Hippensteel, Technical Staff, Bell Telephone Laboratories, Inc.

THE HARMONY OF OUTDOOR WEATHERING TESTS—R. F. Passano, Research Laboratories, American Rolling Mill Company.

THE INFLUENCE OF RAINFALL AND SMOKE ON THE CORROSION OF IRON AND STEEL—G. N. Schramm, Corrosion Research Laboratory, and E. S. Taylerson, Manager, Research Laboratory, American Sheet and Tin Plate Company.

The group appointed by the two sponsoring A.S.T.M. Standing Committees, A-5 and B-3, planned that the Symposium should serve to illustrate certain situations where the test data properly might be used as a guide by engineers and materials technologists. This program committee consisted of the following:

F. F. Farnsworth, *Chairman*, Outside Plant Engineering, Bell Telephone Laboratories, Inc.
W. H. Finkeldey, Metallurgist, Singmaster & Breyer.
C. L. Hippensteel, Technical Staff, Bell Telephone Laboratories, Inc.
R. F. Passano, Research Laboratories, American Rolling Mill Co.
H. S. Rawdon, Chief, Division of Metallurgy, U. S. Bureau of Standards.
Sam Tour, Vice-President, Lucius Pitkin, Inc.

R. J. McKay, Superintendent, Technical Service, International Nickel Co., served as chairman of the session, with Mr. Farnsworth as co-chairman.

It is expected that the papers and discussion will be published during the summer in final form. Members and others who wish to submit written discussion of any of the papers, or on the general subject, are requested to inform the Secretary-Treasurer immediately.

Regional Meeting Dinner

A gathering of some 175 A.S.T.M. members and guests at the Regional Meeting Dinner enjoyed a program void of all dullness. Mr. Willard Chevalier, Vice-President, McGraw-Hill Publishing Co., as toastmaster, very capably inducted the speakers. To him, in no small measure, should be attributed credit for the sustained interest in evidence.

Speakers at the dinner, in addition to President Lawson, who introduced Mr. Chevalier, were the following:

Capt. C. A. Jones, Head of the Design Division, Bureau of Engineering, Navy Department.
Dr. Robert A. Brady, Special Adviser on Consumers' Standards, N.R.A., and Assistant Professor of Economics, University of California.
Col. Henry M. Waite, Deputy Administrator, P.W.A.

Doctor Brady, who is on leave from the University of California, forcefully outlined some of the problems confronting the Consumers Advisory Council and discussed some of the points in the program considered by the consumers branch of N.R.A. He also detailed a number of the ways in which references to quality are incorporated in certain of the industrial codes.

Col. Henry M. Waite, Deputy Administrator, P.W.A., in his short but extremely pertinent address, mentioned some of the difficulties encountered in most appropriately allotting such a large amount of money made available by Congress. One of the problems met was the wide differences in conducting the affairs of various governmental divisions—state, county, municipal, etc. He expressed his conviction of the great ultimate good which might result from a better coordination of construction as regards the separate governmental divisions.

Captain Jones' talk was especially appropriate, on a subject in which considerable interest was evinced. His address is published in this BULLETIN, beginning on page 5.

Much of the credit for the success of the Regional Meeting and Committee Week is due the Washington Committee on Arrangements. Details of registration, dinner, speakers, etc., were handled by this group, consisting of the following:

A. C. Fieldner, *Chairman*, Chief Engineer, Experiment Stations Division, U. S. Bureau of Mines.
H. F. Clemmer, Engineer of Tests, Department of Highways, District of Columbia.
W. M. Corse, Metallurgical and Chemical Engineer.
F. H. Jackson, Senior Engineer of Tests, U. S. Bureau of Public Roads.
H. S. Rawdon, Chief, Division of Metallurgy, U. S. Bureau of Standards.
Stanton Walker, Director, Engineering and Research Division, National Sand and Gravel Assn.

Hotel Rates for A.S.T.M. Meeting at Chalfonte-Haddon Hall

AMERICAN PLAN

	Class A	Class B	Class C	Class D	Class E	Class F
Single Room with Bath	$10.00*	$9.00	$9.00	$9.00	$8.00	$7.00
Double Room with Bath	18.00	16.00	15.00	14.00	13.00	12.00
Rooms with Running Water, Chalfonte only	Single $5.00					
	Double 9.00					

EUROPEAN PLAN

Single Room with Bath	$6.00	$5.00	$5.00	$5.00	$4.00	$3.00
Double Room with Bath	10.00	9.00	8.00	7.00	6.00	5.00

Class A rooms are either ocean-front or ocean-view rooms. Each floor in Haddon Hall contains Class A, B and C rooms, the classification of individual rooms varying from floor to floor, depending upon local conditions and whether the rooms are on upper or lower floors. Class D, E, and F rooms are located in Chalfonte only.

*Only ocean-view as distinguished from ocean-front rooms are available in Class A for single occupancy.

Many Meetings Held During Committee Week

Series of Committee Sessions Well Attended and Productive

A PRODUCTIVE and splendidly attended series of committee meetings were held during the week of March 5 at the Wardman Park Hotel, Washington, D. C. Some idea of the great activity of this 1934 Committee Week can be had from the fact that upwards of 150 separate meetings were scheduled. The registration of about 600 exceeded that of either the 1932 or 1933 series by over 50 per cent. A number of committees reported the largest attendance of members and visitors they had yet recorded.

An added feature of the group meetings was a lecture, under the auspices of Committee C-1 on Cement, on the construction of Boulder Dam, given Tuesday evening by Dr. Elwood Mead, Commissioner of the Bureau of Reclamation, Department of the Interior. He showed some excellent and unusual motion pictures and these with the pertinent description by Doctor Mead, really "put across" a true conception of the immensity and importance of this project.

The following committees took part in the 1934 Group Committee Meetings:

A-1 on Steel
A-2 on Wrought Iron
A-3 on Cast Iron
A-5 on Corrosion of Iron and Steel
A-6 on Magnetic Properties
A-10 on Iron-Chromium-Nickel and Related Alloys
B-3 on Corrosion of Non-Ferrous Metals and Alloys
B-5 Sub. II on Cast Metals and Alloys
B-6 Sub. IV on Physical Tests of Die Castings
B-7 on Light Metals and Alloys, Cast and Wrought
C-1 on Cement
C-3 on Brick
C-7 on Lime
C-9 on Concrete and Concrete Aggregates
C-11 on Gypsum
C-13 on Concrete Pipe
D-1 Sub. VII on Accelerated Tests for Protective Coatings; Sub. XXVI on Underground Pipe Protection
D-2 on Petroleum Products and Lubricants
D-4 on Road and Paving Materials
D-5 on Coal and Coke
D-8 on Bituminous Waterproofing and Roofing Materials
D-11 on Rubber Products
D-13 on Textile Materials
E-1 Sections on Tension Testing, Indentation Hardness, Testing Thin Sheet Metals, Calibration of Testing Machines, Softening Point Test, Presentation and Interpretation of Data
E-4 Sub. I on Preparation of Samples for Metallographic Testing
Joint Research Committee of A.S.M.E. and A.S.T.M. on Effect of Temperature on the Properties of Metals
Research Committee on Fatigue of Metals
Joint Am. Electroplaters Soc. and A.S.T.M. Inspection Committee on Exposure Tests of Electroplated Coatings
Sectional Committee B36 on Wrought Iron and Wrought Steel Pipe and Tubing

Many of the committees voted to recommend new proposed standards and a number will submit to letter ballot of their members proposed changes in existing specifications and methods, and the adoption as standard of items which are now tentative. Many of the actions discussed below are subject to letter ballot approval of the whole committee prior to submission to the Society at the annual meeting in Atlantic City, June 25–29.

The following condensed account of the important features of committee work, which received consideration during Committee Week, will serve as an indication of the work accomplished and what may be ahead in certain research and standardization fields.

Committee A-1 on Steel.—A special subcommittee of Committee A-1 on Steel, which was investigating the possibilities of consolidating specifications for rivet steel, reported after extensive study and conferences with various groups interested, it appeared for the present necessary to retain the three present grades, that is 45,000 to 55,000 lb. per sq. in. tensile range (boiler), 52,000 to 62,000 (bridge, building, rolling stock), and 55,000 to 65,000 (ship).

It was recommended that the rivet specifications in which the maximum sulfur content has been 0.045 per cent have this value revised to 0.05. This will simplify obtaining the various grades of steel at no sacrifice of any necessary safeguards of the purchaser.

Action was taken to recommend the adoption as standard of existing tentative specifications covering steel for bridges (A 7 – 33 T), steel for buildings (A 9 – 33 T), and mild steel plates (A 10 – 33 T), and the concurrent withdrawal of the existing Standard Specifications for Structural Steel for Bridges (A 7 – 33) and for Structural Steel for Buildings (A 9 – 33).

An important change in the reinforcing bar specifications was recommended and approved for submission to committee letter ballot. This proposed revision provides tolerances on individual bars of 6 per cent under for bars ¾ in. and over; 10 per cent under for bars less than ¾ in. in diameter. Existing tentative revisions in the Cold-Drawn Steel Wire Reinforcement Specifications, drafted last year to provide yield point requirements and the clarification of permissible variations, were recommended for adoption as standard.

The Forgings Subgroup recommended a number of changes in the Standard Specifications for Carbon-Steel Car and Tender Axles (A 21 – 27).

Recommended revisions of the Standard Specifications for Wrought Solid Carbon-Steel Wheels for Electric Railway Service (A 25 – 24) will reduce the tolerances for the flange of the wheel to one half those now in existence, while the manganese and silicon ranges will be raised, this being a step toward the betterment of the steel.

Revisions were proposed in the Tentative Specifications for Black and Hot-Dipped Zinc-Coated Welded and Seamless Steel Pipe (A 120 – 32 T) to include specific requirements for galvanizing, covering weight of coating, etc. Action was taken to provide that four of the specifications covering fabricated pipe, including electric-resistance welded, forge-welded, lock-bar, and riveted steel pipe, be recommended to the Society for adoption as standard.

During the coming year work will be undertaken to consolidate the Tentative Specifications A 149 – 33 T and A 150 – 33 T, covering high tensile strength carbon-steel plates. The Subcommittee on Boiler Steel, in charge of these specifications, also offered a consolidation of the Standard Specifications for Boiler and Firebox Steel for Stationary Service (A 70 – 33) and for Steel Plates of Flange and Firebox Qualities for Forge Welding (A 89 – 33). After discussion this was referred to the Welding Subcommittee for study and report.

The withdrawal of the Tentative Specifications for Electric Cast-Steel Stud-Link Anchor Chain was recommended.

As a result of over a year's study by the committee, the Tentative Specifications for Cold-Rolled Strip Steel (A 109 – 27 T) are to be revised. The table of physical properties now in these specifications will be placed in an appendix in considerably amplified form and will not be a basis for acceptance or rejection.

New specifications for Electric-Fusion-Welded Steel Pipe for High-Temperature and High-Pressure Service were approved by the committee for submission to the Society. They

Meetings During Committee Week

(Continued)

cover pipe 18 in. in diameter and over. The omission of requirements for flanges for forge welding, Class A, from the Standard Specifications for Forged or Rolled Steel Pipe Flanges for High-Temperature Service (A 105 – 33) will be proposed to the Society, as will the exclusion of nuts made from hexagonal-bar stock, from the standard covering alloy-steel bolting material for high-temperature service (A 96 – 33).

Sectional Committee B 36.—The Sectional Committee on Standardization of Wrought-Iron and Wrought-Steel Pipe and Tubing, functioning under the procedure of the American Standards Association, will submit to letter ballot of its members the proposed American Tentative Standard for Wrought-Iron and Wrought-Steel Pipe, as revised at the meeting. If approved, it will be submitted to the sponsor bodies, A.S.M.E. and A.S.T.M., for recommended adoption and finally to the A.S.A. for approval.

Committee A-2 on Wrought Iron.—Committee A-2 on Wrought Iron announced that Subcommittee X on Research has completed its report on the quality of wrought iron. Work on this has been in progress for the past year and a half. It will include a foreword explaining the study made by the committee to be followed by a discussion of the chemical composition and physical properties. Succeeding sections will cover structural characteristics, microscopic examination, including a large number of photomicrographs, etc. The information contained in this report will be exceedingly useful and valuable to both those who use and produce wrought iron.

The committee considered the manganese requirements in certain of its specifications and it is probable that changes may be proposed. Revisions of existing Specifications for Common Iron Bars (A 85 – 27) and for Refined Wrought-Iron Bars (A 41 – 30) came up for discussion and as a result the committee will study a consolidation of the two specifications to cover the materials in a single document for merchant bar iron.

Committee A-3 on Cast Iron.—The Subcommittee on Impact Testing of Cast Iron is continuing its work on the development of a standardized method for testing cast iron under repeated shock. The impact test report, issued last year, indicated the value of stress-strain diagrams in the transverse test in giving a measure of the results to be obtained in a single blow impact test of the Charpy or Izod type. However, the drop test, with repeated blows at increasing heights of drop, gave other data of value. The committee is now working on a method of test in order to secure results from various laboratories which will be comparable. Test work will be carried on by members of the subcommittee, and recommendations made within the coming year.

A special group has been working on the methods of making test bars, values of the various bars called for in Tentative Specifications for Gray-Iron Castings (A 48 – 32 T), and recommended values for deflections in the transverse tests. The Universities of Wisconsin and Michigan, as well as the U. S. Bureau of Standards, are cooperating in this investigative work. Considerable data have been secured and a report will be made at the June meeting of the Society.

The Subcommittee on Cast-Iron Culvert Pipe discussed improvements in the existing Tentative Specifications for Cast-Iron Culvert Pipe (A 142 – 32 T). It is expected these changes will be submitted this year.

Committee A-5 on Corrosion of Iron and Steel.—The progress of the extensive test program under way in various sections of the country was outlined at the meeting of the Committee on Corrosion of Iron and Steel. A report of the inspections of the Annapolis tests indicated that several additional failures have occurred in the atmospheric tests on black sheets.

Subcommittee V on Total Immersion Tests announced that additional failures of No. 16-gage sheets at Portsmouth, N. H., and Key West, Fla., had taken place. The tests on riveted ship plates and tubing at Portsmouth and Port Arthur, Tex., are being continued and the committee has decided to undertake additional immersion tests at Portsmouth and Annapolis on flat sheet materials. Details of these studies have been planned and it is hoped the materials can be put in place shortly.

Subcommittee VIII on Field Tests of Metallic Coatings reported that additional inspections had been made of the tests on galvanized sheets. The extensive research covering the several types of coatings applied on hardware, structural shapes, tubular goods, etc., is continuing. These now have been exposed for about five years. Very interesting data obtained by the special committee on inspection was included in the 1933 report of Committee A-5, giving results of inspections after 204 weeks exposure.

Committee A-10 on Iron-Chromium, Iron-Chromium-Nickel and Related Alloys.—The Subcommittee on Classification of Data reported good progress toward completing the compilation of data covering chemical, physical, mechanical and fabricating properties that are of importance in connection with the manufacture and application of alloys within its jurisdiction. In addition, the data will include information on successful spheres of application, marketed forms, etc., of these alloys.

Subcommittee IV on Methods of Corrosion Testing is studying the three accelerated corrosion tests; salt spray, boiling nitric acid and copper sulfate stain test, on which a cooperative test program was reported in 1933. Refinements in the test methods are being considered. These include a shortening of the time required for the boiling nitric acid test, a re-examination of the copper sulfate test to determine what effect surface finish may have on reproducibility of results and a study of the effect of adverse heat treatment on this test.

Subcommittee VIII on Specifications reported definite progress in the completion of specifications for sheets and castings. The committee has decided to organize separate specification subcommittees on flat products, including sheets, strip and plates; on castings; and on wrought products, exclusive of flat and tubular products.

Committee B-3 on Corrosion of Non-Ferrous Metals and Alloys.—One of the subjects which came up for discussion at the meeting was the question of the applicability of test results from exposures now under observation to other

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Some Phases of the Relation between the U. S. Navy and Industry

Address presented at Washington Regional Meeting Dinner, March 7, by Captain C. A. Jones, Head of Design Division, Bureau of Engineering, U. S. Navy

SINCE my work in the Navy is engineering and not making speeches, when I was asked to make an address before this distinguished body of engineers I hesitated, but hoping that I might be able to explain some phases of the Navy which are more or less under constant attack, I decided to accept.

In pondering the question of what I should say to you, I attempted to visualize the exact relationship of this Society to industry. I was reminded of a story which, with elaboration, seems to illustrate this relationship. A certain company contemplated the purchase of a fireproof safe. They were immediately besieged with high-pressure salesmen, each making claims for the superiority of his product. One, more daring than the rest, stated that his company had made elaborate tests. A live rooster had been imprisoned in one of their safes and the safe was placed in a fire for ten days. At the end of this period the safe was opened and the rooster flew out, perched on a near-by post and emitted a loud crow. Another salesman, hearing of this test, presented test results obtained by his company. One of their safes was also made the temporary prison of a live rooster. The safe was placed in a large fire for twenty days and when the safe was opened the rooster was found frozen.

Now into the breach steps A.S.T.M. They confer with purchaser and manufacturer and determine that the fireproof requirements needed by the purchaser do not justify a fireproof chicken coop or a refrigerator. They fix the conditions of the test, twenty-four hours in the fire, for example, the fire to be of a certain maximum temperature, etc., and the "end point" to be a delectably roasted rooster of a certain pale brownness, which could be partaken of with pleasure by the test personnel, this to be demonstrated by actual consumption after the test. Thus, a serious situation is smoothed out to the satisfaction of all concerned.

The fixing of umpire test methods satisfactory to the seller and the purchaser is one of the most important advances of our modern industrial age. "Let the buyer beware" was all right for the ancients when only the buyer was affected by the results obtained with the product. Today the product may endanger the lives of many people and may determine the fate of nations. Hence the purchaser must know what he buys.

Interest of Navy in Society Work

The Bureau of Engineering of the Navy Department has had two memberships in perpetuity in this Society, dating back to 1911, and since that time has been represented on many of its committees and subcommittees, so we naturally feel that we are one of you. The work of the A.S.T.M. in its standardization of engineering materials has had a very pronounced influence on the U. S. Navy, and its continued effort to improve the quality of the products of American manufacturing plants has resulted in better materials being available for the Naval Service. We have no reason to doubt that we shall receive the same benefits and the same whole-hearted cooperation in the future.

We have been criticized because we do not take a sufficiently active part in the formulation of the specifications, various codes and standards prepared under the auspices of the various technical and engineering societies by attendance at the society conventions and committee meetings. You may be surprised to learn that we hold membership in seventeen different societies, and in those societies we have membership on one hundred ninety-three committees covering engineering matters. However, except where specifically authorized by Congress, the expenditure of funds for the travel of officers for attendance at technical society meetings is expressly prohibited by law.

In recent years there has been made available a limited amount, the sum being $1500 per year, which can be expended for the traveling expenses of civilian employees for attendance at meetings of technical, professional, scientific and other similar organizations when in the judgment of the Secretary of the Navy such attendance would be of benefit in the work of the Navy Department. This sum, as you will note, is for the entire Naval establishment and it is entirely inadequate.

Attempt has been made at various times to correct this situation, but to date without success. It results in a most unsatisfactory state of affairs, both from your and our point of view, in that practically all of our cooperative work must be carried on by correspondence or by appointing an alternate, if available in the vicinity, for attendance. Neither plan is fully satisfactory, but is resorted to because we desire to know what you are doing, to keep contacts with you and to outline to you our requirements and problems.

Navy *versus* Commercial Specifications

A question constantly asked is "Why is it that the Navy cannot use the specifications developed for and used by the commercial companies?" The answer is that for a great many purposes we do use commercial specifications and standards, but engineering in the Navy is a highly specialized profession. Our problems and conditions are in many respects entirely different from those encountered in the usual commercial field. Here are some of the factors wherein our requirements differ, necessitating the development of our own specifications in a large number of cases.

1. Combatant ships are built primarily to destroy ships of the enemy; they must be equipped with armor and armament at least equal to that of the enemy, and superior if possible; they must have ample speed to make contact and to escape if necessary; they must be able to stand very severe shocks resulting from gunfire and to be able to "take it."
2. They are built for operation at the maximum speed attainable under bad weather conditions in the tropics or far northern waters, and not for a specific trade route.
3. Weight is of vital importance, especially because of the various international agreements on tonnage. An increase in weight over that absolutely essential results in a decrease in the offensive or defensive characteristics. Any weight which we can save on the machinery or hull can be put into guns and armor. To keep the weight to a minimum we have to work our machinery at a higher rating than that used commercially, and our materials must be such that they will stand higher stresses. For instance, consider the boilers. The rate of B.t.u. absorbed per square foot of heating surface or per pound of weight is from two to three times greater than in merchant vessels.
4. With the ever-present salt from the air and water there exist serious corrosion problems which must be guarded against by the proper choice of materials and designs.

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American Society for Testing Materials

BULLETIN

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Number 67 **March 31, 1934**

The Society's Finances

WE believe that the members of the Society will be interested in the following brief abstracts from the Secretary-Treasurer's report to the Executive Committee on 1933 finances and in a few words on the problem of budgeting for the current year.

Total receipts for 1933 were $105,215.63, made up in round numbers of $65,550 from dues, $28,455 from sales of publications and $11,210 from interest, advertising, receipts from exhibit and miscellaneous. Disbursements, with all current bills paid, were $102,493.25, leaving a favorable balance of $2,722.38. Thus for the third successive year in which the Society has faced seriously reduced income, primarily from loss of membership, it has been possible to "keep out of the red" and to carry on the Society's work with a minimum of curtailment, without having to draw upon its reserves. As a matter of executive policy all surpluses from yearly operations from and including 1929 down to the present have not been added to permanent reserve, but have been set aside for emergency use. It has not been necessary to touch this surplus, which has now reached the approximate total of $10,500. Of this amount the sum of $4800 has been earmarked for addition to the principal of the A.S.T.M. Research Fund, since it represents half of the entrance fees collected during the past four years, and the remainder is still available as a contingency reserve.

All committee reports and all standards and tentative standards were published in 1933, including the triennial edition of the *Book of Standards*, so that there was no curtailment whatever in the important work of formulating and promulgating standards for materials. Curtailment was, of course, necessary in the volume of technical papers; notwithstanding, an excellent and representative program resulted for the annual meeting in Chicago. For reasons other than economy it was found desirable to defer until this year the publication of the comprehensive Report on Significance of Tests of Concrete and Concrete Aggregates; aside from this all papers and discussions for the year were printed. Many special pamphlets and reprints were published, for which there has been a very gratifying sale; indeed, the fact that sales of publications have kept up splendidly throughout these times has contributed materially to the financial showing that has been made.

Many economies have had to be made in such matters as salaries, meetings expenses, traveling expenses of the staff and administrative committees and in other ways, but these have not impaired the activities of the Society in any significant way.

The auditors' report, which will be published in full with the annual report of the Executive Committee, shows the Society to be in sound financial condition. Investments have, of course, shown depreciation due to market conditions, and the auditors' report will show both book and market values of securities held. The surplus of $46,780.58 reported in the balance sheet as of December 31, 1933, on a basis comparable with other years, reflects the continued operation of the Society within its current income, without drawing upon reserves.

There appears on the opposite page a chart showing receipts and disbursements for 1933 divided by the number of members at the close of the year. There are a number of interesting facts revealed by a study of this chart. Whereas total receipts averaged $29.79 per member, the average dues received from each member were $18.16. The income from sales of publications averaged $8.06 per member, a figure that reveals the extent to which the sales of its publications support the Society's operations. Disbursements are classified into four groups as shown, with various subdivisions that tell an interesting story of the relative cost of the several lines of work of the Society.

Budgeting for 1934

It is still necessary to budget Society activities on a very conservative basis in view of the uncertainties of the times. Current receipts have been estimated at about $104,000, which assumes a further, though much smaller, net loss in membership for the year. Expenditures as budgeted will be reviewed quarterly and adjusted within actual income, supplemented if need be by such reserve funds as may be safely and properly used. Expenses in some directions have increased, an important item being rental of the new headquarters, although this is well within the possibilities of present income. (In passing, it may be noted that the complete expense of moving and of establishing the new headquarters, including new furnishings, has been met from the Headquarters Reserve Fund and not from current income.) Full provision has been made for publication of current committee reports and of new and revised standards. Some curtailment is still necessary respecting preprinting and publication of technical papers.

While they may not be borne out as the year goes on, the financial indications for the first quarter of the current year are favorable. There is a distinctly better industrial outlook as reflected in the Society's operations, and with respect to its influence on membership, it now seems likely that we may be able to stem the tide of losses and start the membership curve again upward. The regaining of membership lost under the difficult times through which we have been passing is one of the basic problems that faces the Society today—not alone because of its financial aspects, important though they are, but from the viewpoint of building up the "man power" of the Society and extending still wider the influence of its work. This problem is a challenge to all that have the interest of the Society at heart.

Sectional Committee on Electrical Insulating Materials Organized

Sponsored by Society under American Standards Association Procedure

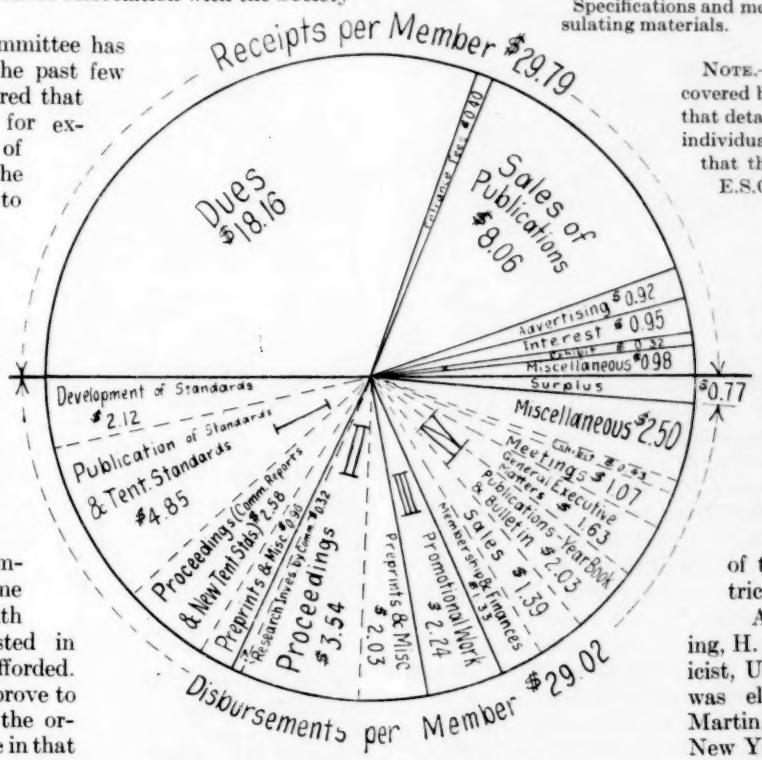
On March 17 an organization meeting was held of a new sectional committee, designated Sectional Committee on Electrical Insulating Materials, organized under the procedure of the American Standards Association with the Society as sole sponsor.

The need for such a committee has become apparent during the past few years. Not only is it desired that some means be available for expediting the submission of A.S.T.M. standards in the electrical insulation field to the American Standards Association for approval as American Standard but also that some agency be established to coordinate the work of the several A.S.T.M. committees at work in the electrical insulation field. By organizing the sectional committee under the procedure of the American Standards Association these purposes are accomplished and at the same time a means of contact with other associations interested in electrical insulation is afforded. This latter function may prove to be the most important in the organization of the committee in that it will provide for the direct participation of these other national bodies in A.S.T.M. work and tend to eliminate any duplication of effort that might otherwise occur.

At the same time the sectional committee will provide a recognized body to which any work on electrical insulating materials arising in the U. S. National Committee of the International Electrotechnical Commission can be referred. Two such projects are already under way, namely, on transformer oils and on shellac and synthetic resins, which projects will head up under the new committee.

The Electrical Standards Committee of the American Standards Association has assigned to the sectional committee the following scope:

> Specifications and methods of test for electrical insulating materials.
>
> NOTE.—In view of the wide field covered by this scope, it is understood that detailed scopes will be assigned to individual projects thereunder and that these will be submitted to the E.S.C. for review.



RECEIPTS AND DISBURSEMENTS PER MEMBER
(Based on Membership as of December 31, 1933)

I. STANDARDIZATION—DEVELOPMENT AND PROMULGATION	$10.51
II. ADVANCEMENT OF KNOWLEDGE OF MATERIALS	5.89
III. PROMOTIONAL WORK	2.24
IV. ADMINISTRATIVE WORK	10.38

Having in mind the coordinating function of the committee, the personnel as given below includes representatives of six A.S.T.M. committees. It also includes representation from the various national bodies which will provide the desired coordination of the work of these bodies and that of the A.S.T.M. in the electrical insulation field:

At the organization meeting, H. L. Curtis, Principal Physicist, U. S. Bureau of Standards, was elected chairman; C. B. Martin, Transmission Engineer, New York Central Railroad Co., a representative of the American Railway Assn., was elected vice-chairman, and R. E. Hess, Assistant Secretary, A.S.T.M., was elected staff secretary.

In general, the committee will look to existing technical committees for the actual preparation of standards and it is to these technical committees that the various projects will be assigned for development. Standards developed by these technical committees will be reviewed by the sectional committee for submission to the A.S.A. for approval as American Standard.

Sectional Committee on Electrical Insulating Materials

Am. Inst. Electrical Engrs.	R. W. Atkinson, General Cable Corp. W. B. Kouwenhoven, Johns Hopkins Univ. J. A. Scott, General Electric Co.
Am. Railway Assn.	C. B. Martin, New York Central Railroad Co. (Two representatives to be appointed)
Am. Soc. Testing Mats.	L. C. Beard, Jr., Socony-Vacuum Corp. (representing Committee D-2) J. W. Paisley, Gillespie-Rogers-Pyatt Co. (representing Committee D-1) J. M. Weaver, Raybestos-Manhattan, Inc. (representing Committee D-13) J. M. Wilson, Bell Telephone Laboratories, (representing Committee D-16) E. D. Youmans, The Okonite Co. (Representing Committee D-11) Chairman of Committee D-9 on Electrical Insulating Materials
A.S.A. Electric Light and Power Group	M. F. Skinker, Brooklyn Edison Co. H. S. Vassar, Public Service Electric and Gas Co. (One additional representative to be appointed) Alternate: A. B. Campbell, Edison Electric Inst.
A.S.A. Telephone Group	D. T. May, Bell Telephone Laboratories, Inc.
Am. Transit Assn.	Dwight L. Smith, Chicago Rapid Transit Co.
Nat. Electrical Mfrs. Assn.	Dean Harvey, Westinghouse Electric and Manufacturing Co. G. E. Landt, Continental-Diamond Fibre Co. F. S. Mapes, General Electric Co.
U. S. Bureau of Standards	H. L. Curtis

Some Phases of the Relation between the U. S. Navy and Industry

(*Continued from page 5*)

5. Our ships may have to operate at advanced bases anywhere in the world, far removed from civilization and repair ships. Under these conditions they must be prepared to make replacements from available stocks and their own repair facilities.
6. It is essential to reduce to a minimum the weight, space and money tied up in materials, standard stocks and spare parts.
7. Our system of purchase.

I think all of the above factors except possibly the last are immediately apparent to you as engineers.

The Navy system of purchasing is prescribed by law. This requires sealed competitive bidding and acceptance of the bid of the lowest responsible bidder complying with the requirements specified. You will note there are only two grounds on which the lowest bid may be rejected. First, that the bidder is not responsible, or second, that his bid does not comply with the specifications. To establish the fact that the bidder is not responsible, assuming that he has furnished a bond guaranteeing compliance, is a rather difficult matter and is very seldom exercised. We therefore are dependent mainly on the specifications being sufficiently detailed and rigid to insure that the material or apparatus delivered is the very best for the purpose intended. I think you will agree that the specifications on a shipbuilder's order for a pump purchased from a reputable manufacturer can be far different from the specifications he would write if he had to buy in the open market a pump offered to him at the lowest price by any one of possibly twenty manufacturers.

Also we have to draw the specifications so that competition is real, that is, our specifications must be such that more than one manufacturer can comply with them. We cannot specify a proprietary article unless it can be clearly shown that it is the only article which will answer the purpose, that it cannot be obtained by competitive bidding, that it is necessary for military or strategic reasons, and that nothing else will do.

Practically all materials used by the Navy in the building of its ships and in their equipment are of commercial quality. By commercial quality I mean obtainable in sufficient quantities from several sources. Wherever practicable, commercial designs and sizes are also used. This results in wider competition and a saving of the taxpayer's money.

Before A.S.T.M. took up the work there was sad need of standardization in the methods of making tests and proper definitions for the results obtained.

The definitions for heat treatments of metals, terms applying to methods of tests and many of the methods for performing mechanical tests made standard by this Society are used without modification by the Navy.

A.S.T.M. methods for analysis of petroleum products and for many other materials are used by the Navy as umpire methods. By using these standards a better understanding on the part of the contractor and the Navy results than could be hoped for if the Navy were to prepare definitions and descriptions of test methods varying from those of the A.S.T.M. in wording only.

The major departure of Navy requirements from commercial purchase specifications occurs where the Navy specifications were issued before complete commercial specifications were available. As revisions are made in the Navy specification there is a closer and closer agreement.

You will find that where specifications or codes covering materials or apparatus for use in the commercial field have been prepared prior to the development of Navy specifications, there is, wherever possible, full agreement. Differences in the main consist of additions to the Navy specifications necessitated by our system of purchase.

Cooperation of Navy in Research

Recently in the technical press and in printed material issued by certain manufacturers there has been much regarding the strength of materials at elevated temperatures. This is caused by the desire to use higher operating temperatures and pressures. The values reported by the various laboratories, equipped in some manner to perform high temperature creep tests, are most confusing and misleading. I understand this Society has established standardized conditions under which the tests shall be run and also standard forms for reporting the results obtained.

The Bureau of Engineering, at the Naval Engineering Experiment Station at Annapolis, has been conducting creep tests over a period of nearly two years and until recently has been unable to obtain results which could be duplicated. The Engineering Experiment Station aided this Society in its investigation of the effects of sulfur and phosphorus in steel, determining the endurance limits and corrosion-fatigue values for many ferrous and non-ferrous metals, and will be glad to cooperate in the investigation of test methods for establishing strengths of metals at elevated temperatures and their creep values.

For the operation of the four laboratories under the auspices of the Bureau of Engineering, consisting of the Naval Research Laboratory, Bellevue, D. C., the Naval Engineering Experiment Station at Annapolis, Md., the Naval Boiler Laboratory at Philadelphia, Pa., and the Material Laboratory at New York, we expend on an average one and a half million dollars per year. There is hardly a field of engineering which investigations at these laboratories do not cover.

In closing, I should like to say that we pride ourselves on being good listeners. If anyone has a complaint to make or an idea to sell, which in his opinion will result in an improved vessel for our Navy, less maintenance cost, or will facilitate maintenance, he can feel quite confident he will get a sympathetic hearing. I should like to have you view the matter on a theory which I have evolved. If I take a proposition to the Engineer-in-Chief and am unable to sell it to him, it is either because the proposition has no real merit, or because I am a poor salesman.

You may not always convince us that you are right, but you may be sure that the decision you get is an honest one, based on our one objective, "The best interest of the Government and in particular that of the U. S. Navy."

Discussion of Papers in Outdoor Weathering Symposium Solicited

Members of the Society and others who wish to present written discussion of the papers comprising the Symposium on Outdoor Weathering of Metals and Metallic Coatings, held as part of the Washington Regional Meeting (see page 2) are requested to submit this as soon as possible. Discussion will be received until April 23.

The Membership Picture

While it would be rash to state definitely that the bottom had been reached as regards A.S.T.M. membership statistics and curves, nevertheless, the report, for the first quarter of 1934, on new members and those who have resigned, is decidedly encouraging. There have been fewer resignations than in any similar period for the past three years, and we are noticing better signs in the number of new members. This may be indicative of several things—better tone in industry, etc., but it can definitely be construed that now is the time to stress our membership promotion work.

The Membership Committee, under the chairmanship of K. B. Cook, has already made much progress—and will continue to do all it can—initiating, organizing and directing. We can depend on this committee to give its best efforts. We are certain that each member of the Society also will do all he can to get our membership curves going up grade again.

A very large percentage of the several hundred who were forced temporarily to withdraw from A.S.T.M. did so because of economic reasons. Improved industrial conditions will bring many of these members, both individuals and companies, back. But opportunities for effective work lie in the great number of individuals and companies who are daily deriving benefit from A.S.T.M., and yet are not aware of the extent of A.S.T.M. work and the fact that they could derive much greater value by close affiliation through membership. There are large numbers of men and companies who would welcome a share in A.S.T.M. work if familiar with it. The most direct and the best way to reach these is by the personal contact of our members.

The next three months are among the best for membership work—our records show that. For ammunition—there is the annual meeting—all are welcome—anyone who attends the meeting cannot help but gain an insight into the hard work put on A.S.T.M. and the very tangible results. There are the preprints of the papers and reports. Always the extensive publications are very real assets of affiliation.

Remember that the Society's work covers a wide range of subjects. Interest need not be limited to any specific material.

Members will find application blanks in the back of the Year Book, Book of Standards, etc., and can always obtain blanks, descriptive booklets, and folders describing A.S.T.M. publications by dropping a note to the A.S.T.M. office.

Membership activities must be extended. Increasing numbers of members mean that more material can be printed, more research work sponsored and all activities expanded, with benefit to all in A.S.T.M.

Let each member consider himself an A.S.T.M. committee of one, not only to advertise A.S.T.M., but to get his one new member. Very definitely, A.S.T.M., despite its widespread work and the use made of its standards, technical reports, etc., is not self-promoting. What will accomplish results—specifically broaden our membership—is *personal effort* on the part of *each* A.S.T.M. member.

Erratum in 1933 Lecture

Members should correct the expression appearing on page 102, 1933 *Proceedings*, Part II, to read as follows:

$$\{(\rho_1 - \rho_2)^2 + (\rho_2 - \rho_3)^2 + (\rho_3 - \rho_1)^2\}$$

This expression, given in the 1933 Edgar Marburg Lecture, also appears on page 100 of the reprinted lecture.

Committee Approves Specifications for Classification of Coal According to Rank and Grade

The approval of tentative specifications for the classification of coal according to rank and grade was the outstanding achievement of the Sectional Committee on Classification of Coal announced at a meeting held in February in New York City in connection with the annual convention of the American Institute of Mining and Metallurgical Engineers. This committee, organized in 1927 under the sponsorship of A.S.T.M. and the rules of the American Standards Association, draws its membership from various trade, technical, and Governmental organizations interested in the composition, production, and utilization of coal.

The problem facing the committee was a difficult one. The composition and properties of coal vary over an extraordinarily wide range. Not only did the original plants from which the coal was formed vary in nature and kind, but the conditions surrounding the accumulation of the vegetable material differed greatly, as did the subsequent effect of pressure, temperature, and time in the geological ages that have followed the deposition of the original material. In general the oldest coals have suffered the greatest change. These are represented by the anthracites. The youngest coals, those which are just entering the coal stage of plant transformation, are called lignites. Between lignite and anthracite is a gradation of classes ranging from subbituminous to various ranks of bituminous coal.

A subdivision of the Coal Classification Committee known as the Technical Committee on Scientific Classification has made an extended experimental study of the various kinds of coal found in the United States, and a similar committee in Canada has covered the coals of the Dominion. On the basis of this work the committee has developed a system of classifying coal according to rank, ranging from lignite on the one hand to anthracite on the other. Definite boundary lines and tests have been specified so that there will be no confusion in the application of this classification to the needs of Government and industry.

The classification of coal according to *rank* is based on the composition and properties of the coal and essentially on those properties which are a result of the degree of metamorphism of the coal in its progressive alteration in the natural series from lignite to anthracite. This classification virtually is determined by nature and cannot be changed by preparing or washing the coal.

The classification of coal according to *grade* depends primarily upon the amount and nature of the impurities present, such as ash-forming constituents, sulfur, fusibility of ash, etc.

These specifications are approved in tentative form. They represent a first approximation by the committee which will continue to work on them during the coming year and improve them to the point where they are suitable for adoption as standard specifications.

A. C. Fieldner, Chief Engineer of the Experiment Stations Division, U. S. Bureau of Mines, Washington, D. C., is Chairman of the Sectional Committee; H. J. Rose, Senior Fellow, Mellon Institute, Pittsburgh, is Chairman of the Technical Committee on Classification; and E. A. Holbrook, Dean of Engineering, University of Pittsburgh, is Chairman of the Technical Committee on Nomenclature.

Report on Impact Testing of Cast Iron

The extensive report on the usefulness of the several forms of impact test as applied to cast iron contains one of the most comprehensive series of data ever assembled on the physical properties of this material. The research work, extending over a period of three years, and the correlation of data was sponsored by Subcommittee XV on Impact Testing, of A.S.T.M. Committee A-3 on Cast Iron. This group enlisted the cooperation of other prominent workers in the field of cast iron.

Some 500 tests bars were specially cast, machined and tested by the several methods investigated, on the various types of machines commercially in use. Extensive tables give the results of the transverse, tension, fatigue, compression and shear tests which were made and these data are condensed in convenient form by the use of charts.

Notched and unnotched Charpy and Izod tests were run, as well as repeated blow and drop tests. The conclusions of the committee in charge and the inclusion in the report of discussers' comments enhances the publication's value.

Copies of reprints of the report, aggregating 51 pages, in heavy paper cover, are available at 50 cents each.

New Certificates of Membership Available

Because the form of the Certificate of Membership which has been used for several years makes no provision for listing the date on which a member became officially affiliated with the Society, thus necessitating that the certificate be obtained almost simultaneously with the filing of the application in order to show the date of acceptance, a revised form of certificate has been adopted. A facsimile of this is shown on this page.

It will be noted that the certificate is designed so that the member's name can be engrossed on it together with the date on which he became a member. Provision is also made for inserting the membership classification, that is, Member, Honorary Member, etc. This membership certificate is signed by the secretary and president and the official Society seal is affixed.

Outside dimensions of the certificate are 22 by 17 in. It is engraved on an excellent grade of heavy parchment paper, suitable for framing. Copies can be obtained at $2.50 each.

It is thought the new certificate may appeal to many of the members, especially those who have been affiliated with the Society for a number of years, since a record of the membership date will appear on each certificate. In sending orders, members should specify clearly how they wish their names to appear on the certificates.

American Society for Testing Materials

Incorporated 1902

This is to Certify that

John Richard Doe

on February 16th, 1928 was

Elected a Member of the

American Society for Testing Materials

a Corporation formed for the Promotion of Knowledge of the Materials of Engineering and the Standardization of Specifications and the Methods of Testing

Witness our hand and seal at Philadelphia, this day of 19

1934 Nominating Committee for Officers

Based on the report of the tellers, T. Holland Nelson, Consulting Metallurgist, and W. R. Scanlin, Chief Engineer, Philadelphia Rapid Transit Co., both of Philadelphia, on the ballot on recommendations for appointments on the 1934 Nominating Committee, the Executive Committee appointed the following members of the Society to serve:

T. G. Delbridge	W. H. Fulweiler	W. B. Price
E. J. Edwards	E. F. Kenney	J. B. Young

These members, together with Past-Presidents K. G. Mackenzie, F. O. Clements and Cloyd M. Chapman, who according to the By-laws are *ex-officio* members of the Nominating Committee, have selected nominees for President, Vice-President, and for five members of the Executive Committee, whose terms expire with the June, 1934, meeting.

Refractories Committee Meets in Cincinnati

The Society's Committee C-8 on Refractories held a meeting in Cincinnati during the annual meeting of the American Ceramic Society. Current work was studied and a number of recommendations were made affecting standards.

The committee expects to present to the Society for approval as tentative two proposed methods of test, one covering the resistance of refractory brick to thermal and structural spalling, the other determining similar properties of fire-clay brick for stationary boilers and malleable iron furnace bungs. Proposed specifications are being referred to letter ballot of the committee, covering ground fire clay and fire-clay brick for use in incinerators.

Recommendations will be made to adopt as standard the existing Tentative Method of Test for Particle Size of Ground Refractory Materials (C 92 – 32 T) and revisions which have been tentative in the Method for Determining the Pyrometric Cone Equivalent of Fire Clay and Fire Brick (C 24 – 33).

Meetings During Committee Week

(*Continued from page 4*)

types of service conditions. The matter of including other types of materials than those in the test racks was raised and a number of members commented on this question.

It was voted to bring in the second set of atmospheric test specimens this fall. These specimens have been exposed for a period of three years and the committee's original plans called for the specimens to be tested and examined in the fall of 1934.

The Subcommittee on Liquid Corrosion which is obtaining information and data on the resistance to a few common solutions of some 20 representative metals reported that the tests in sulfuric acid, alkali and sodium chloride had made notable progress.

The group working on galvanic and electrolytic corrosion will bring in its three-year specimens this fall, thus following out the plans as laid down when the tests were started. This group has expended a great deal of time and effort in analyzing the first specimens brought in and the 1934 annual report of Committee B-3 will include considerable data developed by this investigation.

H. S. Rawdon, U. S. Bureau of Standards, and E. H. Dix discussed briefly the effect of temperature of the salt spray test on the loss in tensile properties of exposed specimens, and a representative of the U. S. Navy outlined in some detail a number of the corrosion problems confronting the Navy, especially in relation to aircraft.

Cast Metals and Alloys (Copper and Copper Alloys).—Subcommittee II on Cast Metals and Alloys, of Committee B-5 on Copper and Copper Alloys, will review all of the nonferrous casting specifications and undertake necessary and desirable revisions. It is planned to emphasize the physical properties of these materials and to use the chemistry more as a guide—depending on the use and application of the material.

The Specifications for Bronze Bearing Metals for Turntables and Movable Railroad Bridges (B 22 – 21) are being used more and more in highway bridge construction and the committee is planning to initiate a review of the specifications, cooperatively with the American Railway Association and the American Association of State Highway Officials with the purpose of covering improved alloys for use in connection with bridges.

Joint A.S.T.M.-A.S.M.E. Research Committee on Effect of Temperature on the Properties of Metals.—Last year this committee prepared tentative "codes of recommended practice" for the making of short-time high-temperature tension tests, and long-time or "creep" tests. Adherence to these principles bids fair to enable different laboratories to secure consistent and reliable results.

In order to aid laboratories to achieve consistency, there has been a demand for a "standard" material to use in cross-checking results from different laboratories. The committee is having prepared, through the courtesy of the Bethlehem Steel Co., a supply of 0.40 per cent carbon open-hearth steel, specially made, selected, annealed and tested so that the supply will be of an extreme degree of uniformity, and thus suitable for cross-checking or so-called "calibration bar" purposes.

The Joint Committee will supply this steel to those laboratories interested in finding out how well their short-time and/or creep tests agree with those from other laboratories. Such cooperating laboratories will agree to make the comparison creep tests at one temperature and load and for the length of time selected by the committee, and the short-time tests at a few selected temperatures, recording all the data required by the codes in order to show that at least the minimum precautions for accuracy required by the codes have been observed. Sufficient material for duplicate tests will be supplied if desired. The A.S.T.M. Headquarters can supply at nominal cost pads of forms for reporting data, which workers in this field will find convenient not only for this report, but for regular use.

The results will be summarized and when enough data are available, published, each laboratory being designated only by a symbol. It is expected that the degree of concordance shown by such a comparison will greatly increase the confidence of engineers in the determinations of high-temperature properties of metals made with modern equipment and using up-to-date precautions for accuracy.

The committee would like to have a list of the laboratories which are equipped to make short and long-time high-temperature tests under code refinements and the number of creep units that come within the code requirement available in each laboratory. It is desired to list in this "census" both the private laboratories of firms handling only the work of those firms themselves and the research laboratories that can handles such tasks for those whose own laboratories are not so equipped. It is desired that apparatus and methods being used for study of the possible future applicability to high-temperature investigations of so-called "accelerated" methods be also listed.

The question of a possible future investigation of the relationship of "accelerated" tests to the regular single load, single temperature, long-time test and of various methods of interpolation and extrapolation from creep data to other loads, other temperatures and other times, on which question the committee recently asked for comment from the industries concerned with the use of metals and alloys at high temperatures, was discussed. Further comment is desired before the committee makes definite plans. A full statement of this problem has been prepared and can be obtained from the Secretary of the Joint Committee, Mr. N. L. Mochel, Westinghouse Electric and Manufacturing Co., Lester Station, Philadelphia, Pa.

Requests for the steel to be used as "calibration bars" for cross-checking purposes on short-time and creep tests with information on the amount required, as well as information for the "census" of high-temperature laboratories able to operate under the committee codes, should also be sent to Mr. Mochel.

Research Committee on Fatigue of Metals.—Preliminary arrangements have been made by this committee for a cooperative undertaking with the Subcommittee on X-ray Methods of Committee E-4 on Metallography, to study the effect on atomic structure of metals of the starting of a spreading crack by repeated application of load. Such a spreading crack is commonly though rather inaccurately called a "fatigue" crack.

Arrangements were also made for a study of limiting loadings and number of applications of load which cause

appreciable weakening of material in withstanding the destructive effects of subsequent loads.

Conference on Electroplating.—A conference on exposure tests of electroplated coatings was held during A.S.T.M. Committee Week under the auspices of the joint committee of the American Electroplaters' Society, American Society for Testing Materials and the U. S. Bureau of Standards.

The results of the nearly completed study of plated coatings on steel were discussed with special reference to the possibility of basing specifications upon them. A tentative classification of different types of exposure or service was considered and thicknesses of various coatings required to provide satisfactory protection were suggested. An effort was made to classify most of the important applications of plating under either severe or mild conditions of service.

Steps were taken toward the preparation of typical specifications for plating on steel. As soon as numerous details are agreed upon, the proposed specifications will be submitted through regular channels to the A.S.T.M. and A.E.S. for their consideration.

Plans were considered for the extension of the exposure tests to include plated coatings on non-ferrous metals. A number of recommendations were made, as outlined here.

Future studies should include some plated steel specimens to serve as a basis of comparison with other base metals and as a confirmation of the first tests. The base metals should include copper, rolled brass (65-35), extruded brass (leaded), cast brass (85, 5, 5, 5), and possibly an 18 per cent nickel brass. The need for a study of different plated coatings on zinc-base die castings was strongly emphasized. Tests of plating on aluminum and its alloys were also suggested. In each case the effects of the composition, thickness, and conditions of deposition of the coatings should be studied.

It was recommended that the new exposures be made in the six locations used for the tests on steel. Accelerated tests will be studied.

Because the failure of plated coatings on non-ferrous metals is likely to result in various colored coatings of stains, it may be difficult to correlate these on a numerical scale. The early inspections must therefore be very detailed in the hope that such a scale may be developed. In the near future a tentative schedule of exposure tests will be prepared on the basis of these recommendations and the space available on the racks. In the meantime additional suggestions will be welcome regarding the scope of such an investigation.

Whether this program can be carried out in the near future will depend largely upon the funds received by the American Electroplaters' Society for the support of its Research Associate at the Bureau of Standards. It was estimated that about $5000 per year for two years will be required to complete the exposure and laboratory tests as above outlined. Suggestions and questions regarding the investigation may be sent to the chairman of the Joint Committee, William Blum, Bureau of Standards, Washington, D. C.

Committee C-1 on Cement.—The Subcommittee on Methods of Chemical Analysis reported that the study of certain analytical methods by 12 cooperating laboratories was steadily progressing. It is hoped that recommendations as to standard procedure can soon be made.

The Subcommittee on Plastic Mortar Tests for Portland Cement described the large amount of work it had done on this subject during the past year. The report of the last series of tests by a group of cooperating laboratories is almost completed and it is hoped that, in the near future, a tentative method of plastic mortar compression tests of portland cement can be offered.

The Subcommittee on Fineness presented a brief summary of the recently completed sub-sieve fineness tests on 4 samples of cement distributed by the Cement Reference Laboratory to more than 20 laboratories. The test data are now being studied and the comparison thus afforded between the results obtained by different laboratories and methods will undoubtedly assist in promoting uniformity in test results and methods of expressing data.

Interesting discussions touched on the current work of the subcommittees studying setting time, high-early strength cements, blended cements, low-heat cements, volume change and soundness of portland cement, and plasticity. The test data and other information being collected by these subcommittees are sure to prove very helpful in the near future. Careful consideration was also given to suggested specifications intended to cover certain types of cements not already covered by existing A.S.T.M. specifications, and further study is now being made.

Committee C-3 on Brick.—Action will be taken by the Committee on Brick to recommend the adoption as standard of the Tentative Specifications for Concrete Building Brick (C 55 – 33 T). The compression and transverse test requirements in the Methods of Testing Brick (C 67 – 31) are to be reviewed. A study is to be made of the inclusion in the Specifications for Building Brick (made from Clay or Shale) (C 62 – 30) of requirements for weathering resistance. After discussion of the absorption requirements in the Specifications for Clay Sewer Brick (C 32 – 24), the question of revision was referred to the subgroup in charge.

Committee C-7 on Lime.—The outstanding accomplishment of this committee was the development of proposed tentative specifications for "eminently" hydraulic lime for structural purposes. While this lime has been extensively used abroad, its introduction in this country is comparatively recent. It has properties differing somewhat from quicklime and hydrated lime products and the preparation of the specifications recognizes the increasing use of this product.

Revisions are being recommended in the standard specifications covering quicklime for structural purposes. These consist of an enlargement to include all types of quicklime, granular, crushed, etc. Changes in the specifications covering hydrated lime for structural purposes will be recommended to the Society. This class of material will be required to meet a soundness test, thus raising the standard of quality.

Tentative Specifications for Sand for Use in Lime Plaster (C 66 – 31 T) were approved by the meeting for recommendation to the Society for adoption as standard. As a result of considerable experimental work which has been done at the U. S. Bureau of Standards on a new method for determining the soundness of limes, the committee took action to recommend the inclusion of this autoclave test in the standard methods of testing. The committee feels that the autoclave test should be the recognized method of determining soundness.

All of the actions recommended at the meeting are of course subject to confirmation by letter ballot of the committee.

Committee C-9 on Concrete and Concrete Aggregates.—The committee will recommend to the Society that the five

tentative specifications for curing concrete be advanced to standard. These include the general curing specifications, and specifications for curing portland-cement concrete slabs with bituminous coverings, with calcium chloride admixture, with surface application of calcium chloride and with wet coverings.

The committee will also recommend in June, subject to letter ballot approval, proposed tentative specifications for sodium silicate for curing concrete and a tentative method for the determination of the amount of coal and lignite in sand.

A recommended practice for the design of a concrete mixture on the basis of strength and placeability has progressed sufficiently to be scheduled for consideration at the next meeting of the committee.

In addition to action on standards and tentative standards, Committee C-9 added the following projects to its study program: Development of a method of making accelerated compressive strength tests of concrete by means of high temperatures; development of a method of test for concrete placed by means of vibration; and value of blended cements in reducing the permeability of concrete.

Committee C-11 on Gypsum.—The determination of time of set of neat gypsum plaster is being studied by the committee and tests are to be conducted with and without Ottawa testing sand. This will involve the use of a positive accelerator of constant composition used without sand to determine if the method is preferable to the one requiring standard testing sand.

It was recommended that the Tentative Specifications for Gypsum Lath (C 37 – 31 T), for Gypsum Wall Board (C 36 – 31 T), and for Gypsum Sheathing Board (C 79 – 31 T) be submitted to the Society at the annual meeting in June for adoption as standard.

Recommendations were made to the committee that it consider lowering the minimum weight requirements in the specifications for gypsum board products. This matter was referred to the Technical Problems Committee of the Gypsum Association for study, with the request that it report its findings to Committee C-11.

Further investigations will be conducted on the Wells method for determining the sand content of set gypsum plaster using a 25 per cent ammonium acetate solution. Some difficulty was experienced in filtering solutions using a 50 per cent ammonium acetate solution and it was felt this might be overcome with a 25 per cent solution.

Committee C-13 on Concrete Pipe.—It was recommended that the title of the Standard Specifications for Cement-Concrete Sewer Pipe (C 14 – 24) be amended to read "Non-Reinforced Concrete Sewer Pipe." Suggested revisions were approved for reference to all members of the committee, covering changes in the details of test methods and the elimination from the tabulations of all sizes above 24 in. The sizes above 24 in. go into the Reinforced Concrete Sewer Pipe schedule.

The committee also will recommend changes in the Tentative Specifications for Reinforced Concrete Pipe (C 75 – 30 T) with the title amended to read "Reinforced Concrete Sewer Pipe," involving details of tests and test specimens, and particularly the strength requirements which are to be materially increased for all sizes of pipe. For example, strength requirements for 24-in. diameter pipe under loads to produce a 0.01-in. crack, will be increased from 1740 lb. per lin. ft. to 2400 lb. and for 36 in. from 2470 to 3000 lb.; and under "Minimum Design Requirements," concrete of 3000 lb., 4500 lb. and 5000 lb. per sq. in. will replace the old values respectively of 2750 lb., 4000 lb. and 4500 lb. Similar increases in load and minimum design requirements have been worked out for extra strength pipe.

The work on revision of concrete culvert pipe specifications has made considerable progress, but has not yet reached the stage for action by the full committee.

The committee is planning to proceed with the preparation of a brief manual of laying practice covering both concrete culvert and sewer pipe for publication as an appendix to the specifications.

Protective Coatings.—Two subcommittees of Committee D-1 on Preservative Coatings for Structural Materials met in Washington. Subcommittee XXVI on Underground Pipe Protection has carried out a considerable amount of work on the subject of priming coats and reported progress toward tentative specifications covering, for the present, the bituminous type of primers only. For lack of standardized methods of measuring adhesion of the coating to metal, it was deemed inadvisable to offer these specifications for publication at the present time, but the committee hopes that such a test will be developed in the near future, when the specifications should be of considerable use, both in evaluating bituminous primers and in developing better priming material that will have greater durability under atmospheric exposure.

The specifications which have been developed cover the performance of the coating rather than its composition so that a wide variety of bituminous materials is included.

Subcommittee VII on Accelerated Tests for Protective Coatings has extensive studies under way both on the development of specifications for materials used for accelerated tests and on the tests themselves. The group on lacquers, which has been sponsoring cooperative tests in five laboratories, in its progress report suggested that due to the great variation in manner in which results of accelerated tests were reported, a study be made of a uniform reporting practice.

The group working on panel specifications has brought its data to a point where it is expected complete specifications for northern white pine for outdoor exposure test purposes on house paints will shortly be presented for consideration of Committee D-1.

An interesting discussion on the general status of accelerated tests in the industry developed the rather general agreement that these tests are most useful for detecting specific weakness in a paint rather than giving an indication of results to be expected from ordinary outdoor weathering.

Committee D-2 on Petroleum Products and Lubricants.—Among the highlights of the D-2 meetings interest in gasoline was conspicuous. Technical Committee A on Gasoline received an interesting report from its newly formed Section on Specifications. The immediate objective is "To determine the significance of the specification items for gasoline with reference to its performance in automotive engines (other than aircraft engines) and to indicate the economic factors involved in the formulation of gasoline specifications." Such information will serve as a guide in three matters, namely, (*a*) specification writing; (*b*) engine design; (*c*) gasoline manufacture. Progressive changes in engines and fuels impose a temporary significance on reports on this subject so that yearly revisions are expected and planned.

The subject of vapor locking characteristics of gasoline led to a spirited discussion. It is expected this will be continued in June at the annual meeting of the Society.

The Cloud and Pour Point Test (D 97 – 30) will be subject to tentative revision along lines which clarify the procedure of conducting the tests and reduce operating discretion, but without altering previous results. For example, instead of referring to "a cooling bath of suitable temperature" the tentative revision provides a series of baths of specified temperatures.

A specification subcommittee working on volume correction tables has nearly completed its work. It is probable that the Standard Abridged Volume Correction Tables (D 206 – 25) and the corresponding U. S. Bureau of Standards Circular No. 154, National Standard Petroleum Oil Tables, will be revised at an early date to include two additional groups, namely, a "Group C" for products of A.P.I. gravity below 15 deg. where the coefficient of expansion will be 0.00035 and a "Group VII," 94 to 100 deg. A.P.I. gravity, coefficient of expansion 0.00090.

Technical Committee C on Fuel Oils formulated recommendations for changes in the present Commercial Standard Specifications for Fuel Oil to be referred to letter baliot of the committee.

A new subcommittee of Committee D-2 was organized to handle all matters pertaining to viscosity of petroleum, including viscosity-temperature relationships. Some consideration was given to expressing viscosity in absolute units as well as in Saybolt seconds. Pending the obtaining of additional desired information, action was deferred because this matter is of international significance.

Committee D-4 on Road and Paving Materials.—The committee took action to recommend the adoption as standard of the Specifications for Calcium Chloride (D 98 – 33 T) and Chemical Methods of Test for Calcium Chloride (D 345 – 32 T).

Proposed methods of test for liquid asphalt products have been completed and the committee plans to take final action on these at its meeting in June and submit them to the Society during the summer.

It was reported that a conference committee had been appointed through Committee E-1 on Methods of Testing to make a study of the softening point test (ring-and-ball method), originally developed by Committee D-4, looking toward the development of an improved procedure applicable to a wider range of materials for which the softening point test is important.

The cooperative tests on bituminous emulsions which are being conducted in England, France, Germany, Holland, and this country, were outlined. This important work grew out of the World Petroleum Congress held in England last July. Work in this country is being done by A.S.T.M. through Committee D-4.

Committee D-5 on Coal and Coke.—Action was taken to recommend to the Society, the adoption as standard of revisions in the Test for Size of Anthracite (D 310 – 31). These were proposed last year and affect principally the size of openings in the testing screens.

A proposed agglutinating-value test for coal was discussed and will be recommended for issuance as tentative. This method, based on extensive experimental work reported as a technical paper at the annual meeting of A.S.T.M. last year, is a small scale laboratory test which gives data on the caking and coking properties. The paper entitled "Agglutinating-Value Test for Coal" appears in the 1933 *Proceedings*, Part II, p. 741.

Studies are under way on the caking of coals on the grate and these will be correlated with data obtained from the agglutinating-value test.

Arrangements are being made to conduct a round-robin series of tests on the pulverizing characteristics of several different coals covering a wide range of hardness, using different methods. There is considerable information available about the grinding characteristics of the coals selected, and once data are available from the tests, they will be studied and the test of pulverizing which appears to be most suitable will be standardized.

Extensive studies have been made of six friability tests on a series of seven standard coals varying widely in friability. The object was to develop a method of test to measure the resistance of the coals to degradation of size (breaking) during handling and shipment. On the basis of these tests, it appears that the present A.S.T.M. Method of Shatter Test for Coke (D 141 – 23) can be applied equally well to coal. A second friability test is being given careful consideration. This consists essentially in rotating the sample of coal in Abbe jar mills. With this method a smaller size coal sample can be used. The mills are provided with shelves for lifting the charge as the rotation continues and do not contain any pebbles or steel balls.

It was announced that considerable experimental test work is in progress with the aim of developing a suitable accelerated weathering laboratory method of test for determining the weathering characteristics of coal; that is, a tendency to resist disintegration in size or exposure to the elements.

Committee D-8 on Bituminous Waterproofing and Roofing Materials.—Four new specifications for roofing have been prepared to replace four existing tentative specifications. The new specifications which will be submitted to the Society for approval are as follows:

Proposed Tentative Specifications for:

Asphalt Shingles Surfaced with Coarse Mineral Granules
Asphalt Roofing Surfaced with Coarse Mineral Granules
Asphalt Roofing Surfaced with Powdered Talc or Mica
Asphalt Roofing Surfaced with Fine Mineral Granules

It was decided to recommend the adoption as standard of the existing Tentative Methods of Test for Analysis of Roofing Felt for Fiber Composition (D 272 – 29 T).

The subcommittee on bituminous emulsions has been making a thorough study of test methods and will present with the 1934 report of Committee D-8 proposed methods of testing emulsions. These will be published as a part of the report for information. There also will be included a special report on the coefficient of expansion of bituminous materials.

It was decided to prepare revisions of the Tentative Specifications for Asphalt for Use in Constructing Built-Up Roof Coverings (D 312 – 29 T). These changes will be developed during the coming year.

Committee D-11 on Rubber Products.—Substantial progress in the work of standardization of test methods for rubber products was reported by Committee D-11. Methods for operating six recognized abrasion machines were studied and will be consolidated in a single standardized test method. A method for determining compression set of rubber used to absorb vibration in machine mountings was approved by the committee.

Adoption as standard of the present Tentative Method of Test for Hardness of Rubber (D 314 – 31 T) is to be recommended to the Society.

The use of rubber to protect workers on high voltage electric lines has been studied and was discussed at the meeting. The committee has prepared proposed specifications for lineman's blankets which will be published for criticism and comment.

Another activity involves the A.S.T.M. Specifications for Insulated Wire and Cable which are being revised to provide for proper shielding when high voltages are used. Other revisions for wire insulation were also recommended including changes which will place the Class A, Class AO, and performance insulating compounds in separate specifications.

Organization has been completed of a subcommittee to prepare test methods for measurement of swelling of natural rubber and rubber-like materials in liquids and a questionnaire will be sent to several hundred interested laboratories for accumulation of available data. Plans for preparation of a laboratory standard test manual for rubber products have been completed and an outline will be presented in June.

Committee D-13 on Textile Materials.—The reports of the various subcommittees presented at the meeting of Committee D-13 indicated that substantial progress was being made in many of the important projects of the committee.

At the session of the Subcommittee on Raw Cotton the work of the committee was discussed and four interesting papers were presented covering the following subjects: The importance of cooperation between the cotton textile industry and the cotton breeder; the problem of character in raw cotton; determinations of fineness and maturity of cotton fibers; and improvements in the Chandler bundle method for measuring strength of cotton fibers.

During the series of D-13 meetings, a conference was held with representatives of the Society of Automotive Engineers at which requirements for automotive felts were studied with a view of harmonizing the specifications.

Progress is being made on the Draper Yarn Data Tables and data have been completed on yarn numbers up to 40s. Samples and processing data are being accumulated for the finer yarns.

The shrinkage test issued last year in tentative form will be recommended, subject to letter ballot approval, for adoption as standard to be incorporated in the existing Standard General Methods of Testing Woven Textile Fabrics (D 39). This test, originally developed by the American Association of Textile Chemists and Colorists, also appears in the general textile testing methods of the Federal Specifications Board. The methods of the three organizations are being reviewed for the purpose of harmonizing minor inconsistencies.

Specifications for single yarn Chafer tire fabrics are being developed and a fatigue test for tire cord is also under consideration.

Complete revision of rayon specifications will be made in order to bring them in line with the recent developments in the industry and work is also in progress on the development of performance tests for rayon fabrics.

Specifications for woolen yarns and determination of scoured content are nearing completion. Also, specifications for worsted yarn are in preparation.

The committee on test methods is working on initial load for elongation test, the question of drum diameters for multiple ply yarn test and the development of a standardized serigraph test.

Several prominent and well-informed speakers were heard at the D-13 Banquet on Thursday evening and at the General Session of the committee on Friday, the following papers were presented:

"Sanforizing" by Howard D. Clayton, Cluett-Peabody, Inc.
"Discussion of Statistical Analysis as Applied to Tire Fabric Testing" by W. R. Marsden, Kelly-Springfield Tire Co.
"A Method of Analyzing Cotton Yarn Strength Data" by M. E. Campbell, Division of Cotton Marketing, Bureau of Agricultural Economics.
"The Relation of Tensile Strength to Rate of Load" by D. C. Scott, Henry L. Scott Co.

Charles Samuel Churchill

1856–1934

Charles Samuel Churchill, who died on January 25, in Roanoke, Va., had been a member of the Society since 1900. He was a member of the Executive Committee, 1912 to 1914. Shortly after his graduation from Yale University in 1878, he entered the railroad field, and was connected with construction work for a number of lines. In 1888 he joined the engineering staff of the Norfolk and Western Railway Co. He became chief engineer in 1903, chairman of the valuation committee in 1913, and in 1918 vice-president, retiring from active work in 1926.

Mr. Churchill took a real interest in A.S.T.M. work, especially in the early years and participated actively in the work of Committee A-1 on Steel. He was a member of numerous engineering societies and a past-president of the American Railway Engineering Association.

International Congresses During the Year

Three international congresses are scheduled for 1934. The Fifth International Foundry Congress is to be held in Philadelphia, October 22–26, in conjunction with the 38th Annual Meeting of the American Foundrymen's Association. The others, devoted to applied mechanics and to pure and applied chemistry, will be held in Cambridge, England, and Madrid, Spain, respectively.

The subjects to be discussed at the Fourth International Congress for Applied Mechanics, scheduled for July 3 – 9, Cambridge, will be grouped under the following general headings:

1. Rational Mechanics, including vibrations of structures and machines.
2. Mechanics of Fluids, including turbulence, the boundary layer, heat transfer, and compressible fluids.
3. Materials, including elasticity, plasticity, fatigue, and crystal structure.
4. Water Waves, including resistance and stability of ships and seaplanes.

The Applied Mechanics Division of The American Society of Mechanical Engineers is cooperating with this Congress. Inquiries regarding it and any suggestions concerning papers suitable for presentation should be addressed to that Society, 29 W. Thirty-ninth Street, New York City.

The Ninth International Congress for Pure and Applied Chemistry, to be held in Madrid, April 5 – 11, is divided into the following groups:

1. Physical and theoretical chemistry
2. Inorganic
3. Organic
4. Biological
5. Analytical
6. Agricultural
7. History and teaching of chemistry

The last International Foundry Congress held in this country, at Detroit in 1926, was an outstanding success. Since then there has been extensive American participation in congresses abroad, and it is expected the one in Philadelphia this year will arouse a great deal of interest.

New Members to March 23, 1934

The following 34 members were elected from January 26 to March 23, 1934:

Company Member (1)

ROCKBESTOS PRODUCTS CORP., B. H. Reeves, General Manager, Nicoll & Canner Sts., New Haven, Conn.

Individual and Other Members (32)

AHLES, C. C., Principal Highway Engineer, New York State Department of Public Works, Thirteenth Floor, State Office Bldg., Albany, N. Y.

ALLEGHENY, COUNTY OF, PURCHASING DEPT., S. D. Hollis, Chief Clerk, 207 Court House, Pittsburgh, Pa.

BAKER, R. W., Metallurgist, Republic Steel Corp., Massillon, Ohio.

BALDESCHWIELER, E. L., Chemist, Standard Oil Development Co., Box 485, Elizabeth, N. J.

BANKS, E. J., Chemist, Colprovia Roads, Inc., 480 Lexington Ave., New York City.

BARTON, J. P., Sales Engineer, Empire Sheet and Tin Plate Co., Mansfield, Ohio.

CAMPUS, F. A. A., Director, Laboratory of Civil Engineering, University of Liége, 9 Rue Gretry, Liége, Belgium.

CHANCELLOR, W. C., Superintendent, Metallurgical Dept., National Tube Co., Lorain, Ohio.

CHITTICK, M. B., Assistant Chief Chemist, The Pure Oil Co., 35 E. Wacker Drive, Chicago, Ill.

COLIN, P. G., Supervisor of Research Dept., Tide Water Oil Co., Bayonne, N. J.

CONE, R. G., Resident Engineer, Golden Gate Bridge, Strauss Engineering Corp., 111 Sutter St., San Francisco, Calif. For mail: Box 47, Presidion Station, San Francisco.

DAVID, A. D., Vice-President, Bradford Penn Refining Corp., Clarendon, Pa. For mail: 306 East St., Warren, Pa.

DEUTSCH, WALTER, Secretary, Deutscher Verband für die Materialprüfungen der Technik, Dorotheenstrasse 40, Berlin NW 7, Germany.

ERWIN, G. H., Vice-President, Reichard-Coulston, Inc., Mauch Chunk Road, Bethlehem, Pa.

GINGRICH, E. S., Engineer of Tests, Bethlehem Steel Co., Lebanon, Pa.

HAMMEL, V. F., Consulting Engineer, 13107-107th Ave., Richmond Hill, N. Y.

JENSEN, C. D., Assistant Professor of Civil Engineering, Lehigh University, Bethlehem, Pa.

JOHNS, C. W., Chief Engineer, The Chesapeake & Ohio Railway Co., Richmond, Va.

KOSTING, P. R., Chemical Engineer, Watertown Arsenal, Watertown, Mass.

KUEHN, P. M., Engineer of Design, The Bartlett Hayward Co., Baltimore, Md.

KUX, A. S., President, Kux-Lohner Machine Co., 2145 Lexington St., Chicago, Ill.

LAWSON, W. S., Chief Engineer, Penitentiaries Branch, Department of Justice, Ottawa, Ont., Canada.

LEVINE, MORRIS, Chief Chemist, Danciger Refineries, Inc., Pampa, Tex.

LOGHRY, L. I., Consulting Chemist, Superior Cement Corp. Masonic Bldg., Portsmouth, Ohio. For mail: 2634 Shawnee Road, Portsmouth, Ohio.

MARTIN, C. A., Consulting Engineer, The British Thomson-Houston Co., Ltd., Rugby, England.

MCCOY, J. T., Supervisor, Research and Development Dept., Tide Water Oil Co., Bayonne, N. J.

MITCHELL, R. G., Chemist, Eagle Oil and Shipping Co., Ltd., London, E. C. 2, England.

PATRICK, W. W., Metallurgist, Ingersoll Steel and Disc Co., New Castle, Ind.

PHILLIPS, G. A., Chief Engineer, Delaware, Lackawanna and Western Railroad, Hoboken, N. J.

ROCCA, B. T., President, Pacific Vegetable Oil Co., Inc., 62 Townsend St., San Francisco, Calif.

TOWNEND, R. V., Technical Director, William Zinsser and Co., 516 W. Fifty-ninth St., New York City.

VAWTER, W. DALE, Chemical Engineer, Union Oil Co., 2016 Erie St., North Kansas City, Mo.

Junior Member (1)

JOHNSON, JOHN, 4429 Decatur St., Omaha, Neb.

Address Wanted

Anyone knowing the present address of R. M. Shankland, whose last known address is Consulting Engineer, Shankland & Stearns, 101 Park Ave., New York City, is urged to notify the Secretary-Treasurer.

Personals

News items concerning the activities of our members will be welcomed for inclusion in this column.

C. E. SKINNER, Assistant Director of Engineering, Westinghouse Electric and Mfg. Co. has been elected a vice-president of the American Association for the Advancement of Science, and chosen chairman of its Section M (Engineering).

S. R. CHURCH, Consulting Chemist, New York City, was elected president of the American Wood Preservers' Association at the Thirtieth Annual Meeting in Houston, Tex.

R. C. STRATTON, Supervising Chemical Engineer, Travelers' Insurance Co., has been appointed a member of the Joint Research Committee on Boiler Feed Water Studies, representing the National Bureau of Casualty and Surety Underwriters; also the American Institute of Chemical Engineers has designated him as its representative on the National Safety Council.

F. R. MCMILLAN was elected the new vice-president of the American Concrete Institute, at the annual meeting in Toronto. New directors include R. B. YOUNG, first district; C. H. SCHOLER, sixth district; and R. E. DAVIS and B. F. AFFLECK, new directors-at-large.

RALPH SMILLIE, who was Transit Engineer, City of Newark Transit Bureau, Newark, N. J., is now Engineer of Design, Port of New York Authority, New York City.

RAYMOND W. WOODWARD is now Metallurgist, Underwood Elliott Fisher Co., Hartford, Conn.

WILLIAM A. GIBSON, formerly Senior Ordnance Engineer, Picatinny Arsenal, Dover, N. J., is now Supervisor of Methods, Revere Copper and Brass Inc., Detroit, Mich.

MILO S. KETCHUM, at his request, has been relieved of the duties of Dean of the College of Engineering, and Director, Engineering Experiment Station, at the University of Illinois. He is now Research Professor of Civil Engineering and will continue research investigations and graduate instruction.

A. G. FLEMING, Chief Chemist, Canada Portland Co., has been awarded the Plummer Medal of the Engineering Institute of Canada for his paper on "The Development of Special Portland Cements in Canada."

ALMON L. BEALL has recently become Engineer, Engineering Department, Wright Aeronautical Corp., Paterson, N. J.

ALLAN T. RICKETTS is now Engineer-Examiner, Public Works Administration, Washington, D. C.

H. B. PULLAR, formerly Secretary, Berry Asphalt Co., is now with the American Mexican Petroleum Corp., Chicago, Ill.

Necrology

We announce with regret the death of the following:

MORRIS R. CHASE, Metallurgical Engineer, A. Finkl and Sons Co., Chicago, Ill.

WILLIAM CLELAND, Director and General Manager, The Sheffield Testing Works, Ltd., Sheffield, England. Member since 1928.

CHARLES H. CLAIBORNE, General Sales Manager, Union Mining Co., Baltimore, Md. Member since 1914. Mr. Claiborne was a member of Committee C-8 on Refractories.

HENRY PERCY CUSHMAN, 2618 Nineteenth Ave., Oakland, Calif. Member since 1924.

A. R. EVEREST, Consulting Engineer, British Thomson-Houston Co., Ltd., Rugby, England. Member since 1915.

STANLEY G. FLAGG, JR., President, Stanley G. Flagg and Co., Inc., Philadelphia, Pa. Member since 1899. Mr. Flagg had been a member of Committee A-3 on Cast Iron, since its organization in 1903, and when Committee A-7 on Malleable Iron Castings was formed in 1918 he also became affiliated with that committee.

HARRY S. HARTZELL, Chemical Engineer, The Fuller Co., Allentown, Pa. Member since 1913. Mr. Hartzell was a member of Committee C-1 on Cement.

JAMES P. MILLWOOD, Chief Chemist, The Okonite Co., Passaic, N. J. Member since 1910.

R. E. RIGHTMIRE, Engineer of Tests, The Consolidation Coal Co., Inc., Fairmont, W. Va. Member since 1927. Mr. Rightmire was a member of Committee D-5 on Coal and Coke.

K. J. THOMPSON, Factory Manager, Mansfield Tire and Rubber Co., Mansfield, Ohio.

GILBERT C. VYLE, Managing Director, W. & T. Avery, Ltd. Soho Foundry, Birmingham, England.